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ABSTRACT

A brief definition of some fundamentals of microcomputers and of the ways they may be used in small businesses can help potential buyers make informed purchases. Hardware (the mechanical devices from which computers are made) described here are the video display, keyboard, central processing unit, "random access" and "read only" memories, cassette and disk drive storage devices, and printer. Programs purchased off the shelf or custom designed for particular business uses are called software. Software described includes word processing, the electronic filing system, and the spread sheet. Four important computer uses in business are data management (quickly and comprehensively provides the maximum of information to businesses), communications (linkages with powerful time sharing computers outside the office), data processing (ways of moving and rearranging stored information), and office systems (including word processing, electronic mail, and business graphics). The report includes descriptions of four businesses that might benefit from being computerized and, in an appendix, a checklist/questionnaire to be used by prospective microcomputer buyers as a guide to determining their need for a microcomputer. (PB)

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BUSINESS COMPUTERS

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Dr. S. Canipe

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ASPECTS OF MICROCOMPUTERS FOR SMALL BUSINESS

With the ever increasing cost of doing business, many business people are considering the use of a small business computer. These computers are sometimes called microcomputers, desk top computers, or personal computers. Whatever they are called, they may be the salvation or the ruination of a business...no matter what the size. Proper consideration must be given to the applications which the device will serve prior to purchase. Not only will this save many headaches before one buys is the best time to get the salesperson's attention. Once the sale is complete, it is sometimes harder to get questions answered and problems fixed. Knowing what to ask is one of the most important aspects of being an informed buyer. This seminar in small business computers will not make one an expert in selecting the proper machine. It will, hopefully, provide the small business person with the right questions to pose to a vendor of small business computers.

Obviously not every question that one wishes to ask can be thought of during the seminar. If questions do come up I can be reached during business hours at 704/373-4530. I'll try to answer your questions. REMEMBER THERE ARE NO "DUMB" QUESTIONS !!!

CHAPTER I

WHAT IS A COMPUTER ?

Hardware

When someone asks what is a computer, I get a little chuckle. A computer is simply a device for processing information, storing the results, and presenting those results in many possible combinations. This answer makes no sense at all but this is a stock answer for such questions. The microcomputer is simply a smaller version of the above named device...WOW!!!

CRT

A CRT is nothing more than the video display for the computer. It can be thought of as the computer's TV. While the display is not normally a TV , on the microcomputer level many of the visual connections possible are designed to be hooked onto a regular television set. The resolution of most televisions is not designed for serious applications requiring a lot of word processing. The television is great for games but for serious office applications a dedicated video moniter should be considered a must. Most of the moniters in the United States today are called "green screen" because of the appearance of green letters on the screen. A new amber screen is beginning to be marked in this country, following a successful introduction in Europe. Moniters which show color

are also available but unless there is some reason for color (other than just being pretty) it is difficult to cost justify.

Over the years there has been some concern over sitting too close to the screen and the danger of cancer. This fear while based on the knowledge that radiation is emitted from the screen should not concern the average user. Not only is the moniter required to meet strict radiation standards, the average user does not spend that many hours in front of the CRT.

KEYBOARD

With the CRT it is possible to watch what is being sent to the computer. One of the ways to send that information to the computer is through the use of a keyboard. This keyboard looks very much like a typewriter keyboard (on all the office machines). There are all the normal typewriter keys plus a few keys that only have meaning to the computer. One of these is the <control> key. The function of the control key is to allow some of the other keys to perform dual functions. The control key is most often used in word processing applications and some data base management programs. Another key that is not found on typewriters is the <escape> key. Its function is to act as a break or stop key for some of the processing the computer does.

CPU

The CPU is literally the brains of the computer. The central processing unit (cpu) is where all of the arithmatic processes are carried out. It is also where the internal workings of the computer are directed. This includes telling the computer how to manipulate the data it is receiving. The CPU is a rather small device with a lot of power. The current technology produces the cpu out of silicon chips. This technology is so sophisticated that a complete "brain" is smaller that a thumbnail.

MEMORY

In addition to the CPU there are other silicon chips in the computer. These chips are called RAM chips; their purpose is to provide storage of numbers and other data that are not being used at the moment, but which are important to the execution of the program. RAM is an acronym for random access memory. This is a memory that is transient...if the power is removed from the machine-all the RAM memory is lost.

RAM for business machines is generally in the range of 48-256 K-bytes where K stands for kilo. The kilo or thousand bytes stands for the amount of data that can be handled at any one time.

The other type of memory is called ROM for read only memory. This memory stays even after the power is turned off. The knowledge the computer has to understand programs, arithmetic, and to put visual images on a CRT depends on this ROM memory. Computers have differing amounts of ROM memory ,

typically from 4K-24K.

STORAGE

When a program is created for a computer it is necessary to save that program since it is stored in RAM and when the power goes off the program is gone. Two common ways exist for the business user to store and retrieve programs for later use. One of these is through the use of magnetic tape. On the small business machine this tape looks exactly like an ordinary audio cassette. The reason being is that is what it can be. Most people will want to use a high quality tape but the regular cassette works fine. The cassettes are inexpensive but as with all such things they are very slow. It may take several minutes to retrieve information from a tape. A faster storage device is called a disk drive. The diskette for the drive is a flattened disc of magnetic tape. The disk drive records (magnetically) the program information onto the diskette and later retrieves the information for use. Other storage media are available but these two types are by far the most common and useful for the average user.

PRINTER

For serious business use, there must be some method of sharing information that is being saved. It is possible to share this information electronically, but since all people with whom the business person needs to communicate does not

have microcomputers let alone the same type (needed to "talk" and be understood), there must be provision made to produce paper copies of the letters, reports, inventory, projections, spread sheets, etc. There are devices which connect ot interface with the computer which accept computer output and print that output into human understandable language.

Printers come i three basic types. The sharp distinction between the types is becoming blurred with time and deveopment. The cheapest and quietest of the printers is called a thermal printer. It uses heat to transfer images onto specially treated heat-sensitive paper. With the advantages of low capital cost there are the disadvantages of high operation cost-paper is expensive and short-lived quality of the product-paper is heat and light-sensitive and will fade.

The second type is called the dot-matrix. This printer uses regular ribbons and paper to produce its print. An advatage is speed-up to 180 cps(characters per second). One disadvantage in some people's minds is that the print looks like a computer did it.(Strange since it did.)

Letter quality print is exactly like a typewriter print. In some cases it is possible to connect a typewriter to a computer and have it to generate the letters, reports, etc. Speed is rather slow - maximum of about 45 cps.
This guide was generated using this method.

Software

In addition to the hardware parts of the system, businesses will need software or programs to conduct their

business. Exactly what types of programs are used depends a lot on the business. There are some typical packages that are found in most businesses. A listing and discussion of the most common program types follows.

Software can be purchased off the shelf or custom designed. Mass marketed software tends to be general in purpose but comparitively inexpensive. Customized software can be rather expensive but it will do exactly what the user wants.

WORD PROCESSING

This is one of the most common programs in business offices. Word processing is simply electronic typing. In addition to easier correction of errors, many packages will check spelling and automatically justify the text. Many of these programs will also allow the insertion and movement of sentences and paragraphs within the document. It is also possible to utilize nemonics and later replace them with complete words or phrases. This is useful if the name of your company is something like CONSOLIDATED FREIGHT CARRIERS OF THE CAROLINAS. Thenemonic could be simply CF and be replaced by a few keystrokes throughout the document...a real time saver.

DATA MANAGEMENT

This is the electronic filing system available for the microcomputers. It replaces mailing lists, file cabinets, and

in general all of the paper clutter in the office. Since this does away with paper it is very, very important to keep additional electronic copies of important files. These copies are called back-up copies. Anything electronic can be erased just as anything paper can be burned. Prudence dictates back-ups.

Not only does data base management allow for the filing of material, it allows for sorting and printing in whatever way the user desires. This capability adds immeasurably to the utility of the data bases.

SPREAD SHEET

One program which made the microcomputer valuable to business people of all sizes was the development of the electronic spread sheet. It is possible to use the sheet as a modeling device and also as a bookeeping program. Many shuch electronic what-ifs are available today and they all are very useful.

OTHER PACKAGES

There are many, many other programs available which will make the business person's life a little easier. These range from accounting, payroll, inventory, tax, graphic packages with all things in between. If a package does not exist the chances are good that as soon as you can mention and show a market for it the package will be available. Microcomputering

is just at the stage of explosion and the software is only a short way behind.

COMPUTER USES IN BUSINESS

Directions

Over the next several years there will be computers fitting into the office in many ways. These ways can be refined into about four distinct strategies. These strategies are data management, communication, data processing, and office systems. This chapter will examine each of the strategies in terms of the ideal for the samll office. When that office has only one or a few people not everything can be accomplished quickly, these are the ideal ways that these strategies should be implemented.

Data Management

Data management will utilize data base management technology to make the maximum information available to the small business person. In the small office there is little so important as having the information needed to make an important decision. Having this information stored electronically will enable it to be pulled and manipulated for whatever the purpose in an expeditious fashion. The ideal is a free form data base which allows for the information to be input and retieved in many configurations.

Security of information is an important aspect of data base management particularly for the small business which doesn't have elaborate systems to protect it.

Communications

One of the problems often associated with the small business is the isolation of the business. Communications...both voice and data need consideration in an office technology study. Not only can the microcomputer provide local help in word processiong and data management, it can tie into larger time sharing computers with a wealth of data at the user's fingertips. Not to consider this along with the computer is not a wise business decision.

Data Processing

It is not enough just to have the data stored electronically. There must be ways to move this data around create new arrangements and utilize a bit of data from one project into several other projects. Data processing packages do this. In most of the small business oriented data base programs this function is tied into the data management function. In reality, even if both functions are on the same diskette or tape, there are two separate functions.

Office Systems

The office system that the average small business will purchase will be a multifunction unit. It will be equally at home with all the applications just mentioned (data management, communications, data processing) but also into all the other functions of which the microcomputer is capable. These uses include word processing, electronic mail, business graphics, electronic calendaring, and local decision support systems.

The key is to enhance the one thing that the business owner or employee has a limited quantity of <u>time.</u>

CASE STUDIES

This series of case studies sets out the parameters that you should work with in your exercises. None of the companies named are real companies. They are all compilations of real and fictitious data designed to make you really consider whether to computerize and if yes what types of computers and software that the business will need. Work sheets to help in this end are provided following the case studies.

The four businesses that are described are consultant, construction, small retailer, and a service business. The format followed will be a short narrative and then the information as presented in Duns Market Identifier Database.

Creative Consulting

Creative Consulting is a small firm with two principals. The firm specalizes in management consluting for small to medium size businesses. The two partners have their degrees in business and are both former employees of larger firms. The business has been around for 2 years and has recently moved out of the basement of one of the partners to an office park in the suburbs. One of the partners has experience in architectural drawing, gained through experience. There are approximately 20 other businesses doing similar work in the area...all of the larger than Creative.

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CREATIVE COMPUTING
9999 W.Park Dr.
Charlotte, NC 28888

Duns Number: 09-423-3690

Mecklenburg County SMSA:66 (Charlotte-Gastonia-Monroe, NC)

Business: consulting

Primary SIC: 8911 Business Consulting

Year Started: 1980

Sales: $120000

Employees Here: 2
Employees Total: 2

This Is:
A single location
A partnership

Construction Business

Consolidated Construction is a firm that has been around for a long time...10 years. The business is a family-managed and run operation. The father and three sons and sons-in-law comprise the work force. The mother and daughter provide the office and managerial talent. The business has been successful even given the current building slump and now sees new avenues opening with the interest rates dropping. Many of the jobs must be bid and there is a desire to know what constitutes a good bid.

CONSOLIDATED CONSTURCTION
1231 North Myrtle Ave.
Pineville, NC 28022
phone:554-9999

Duns Number: 09-232-1232

Business: construction

Primary SIC: 5555 home building

Year started: 1973

Sales:2,500,000

Employees here: 6
Employees total: 6

This is:
A single location
A manufacturing location
A corporation

Royal Retail

Royal Retail is a new business, only opened for 9 months. It is located in a medium-sized city near a larger metropolitan area. The business specalizes in children's and toddler's clothes. There is a lot of competetion because all of the department stores also carry a line of children and toddler fashions. Inventory control is a problem...what to buy and when. The business is owned and operated by one person.

Royal Retailers
15 Triangle Park
Rock Hill, SC 29000
Phone: 803/344-5454

Duns Number: 06-999-2222

Business: retail sales

Primary SIC: 3535 dry goods

Year started: 1982

Sales: 190,000 (annualized)

Employees here: 1
Employees total:1

This is:
A single location
A retail sales location

Sam's Servcice Center

Sam's is a business which specalizes in cleaning. There are 5 people on the payroll. The business has been around for 3 1/2 years and for the first year had little competition. The last two years has seen a proliferation of similar businesses and Sam's is no longer the king of the hill . Sam's is located in a downtown location and has easy access to allparts of the community. The workers are very good and seem to enjoy their work.

Sam's Service
828 Downtown Rd.
Charlotte, NC 28201
phone:704/332-2323

Mecklenburg County SMSA:50 (Charlotte-Gastonia-Monroe, NC)

Business: service

Primary SIC: 6566 cleaning service

Year started: 197?

Sales: 200,000

Employees here: 5
Employees total: 5

This is:
A single location
A corporation

PRE-SESSION CHECKLIST/QUESTIONNAIRE

APPENDIX A

PERSONNEL

ITEM	DESCRIPTION	LEVEL OR DESCRIPTION
•	Number of people with programming skills	_____
•	Number of people with programming degree	_____
•	Frequency of overtime work	_____
•	Manpower projections	_____
•	Work requirements not being met	_____
•	Level of productivity	_____

EQUIPMENT

ITEM	LEVEL* OR DESCRIPTION
1. TELEPHONES	
• Need for attendance on incoming calls	
• Acceptable answering criteria (5 rings, etc.)	
• Frequency of "traded" phone calls	
• Need for access to WATS line	
• Need for access to outside lines	
• Need for access to direct dial long distance	
• Need for phone security measures	
2. COPY MACHINES	
• Proximity to users	
• Frequency of need for special features (e.g. two-sided copies)	
3. COMPUTER EQUIPMENT	
• Preferred output forms (paper, 'fiche', etc.)	
• Acceptable output alternatives	
• Special noise restrictions	
• Need for video screens (CRT)	
• Need for computer graphics	

* Suggested "Level" Responses

S = Seldom

O = Occasionally

F = Frequently

OPERATIONS

LEVEL OR DESCRIPTION

OFFICE PROCEDURES

- Interface with customers _____
- Interface with other departments _____
- Voice communications _____
- Written communication _____
- Paper correspondence with local areas _____
- Paper correspondence with remote areas _____
- Correspondence outside the Company _____
- Pre-prepared forms processing _____
- Use of courier system _____
- Frequency of report/letter changes _____
- Use of Word Processing Center _____
- Need for security of data _____
- Need to track work in progress _____
- Turnaround time needed on correspondence _____
- Need for individual work stations _____
- Need to retrieve written documents _____
- Annual increase in file storage space _____

DATA PROCESSING	LEVEL OR DESCRIPTION
• Amounts of data entered locally	
• Need for immediate access to data	
• Frequency of data use	
• Need for data access with programs	
• Frequency of data manipulation	
• Number of purchased software packages	
• Life of department developed programs	
• Life of programs developed by Project Development	
• Percent of output received on microfiche	
• Frequency of outside time sharing computer use	